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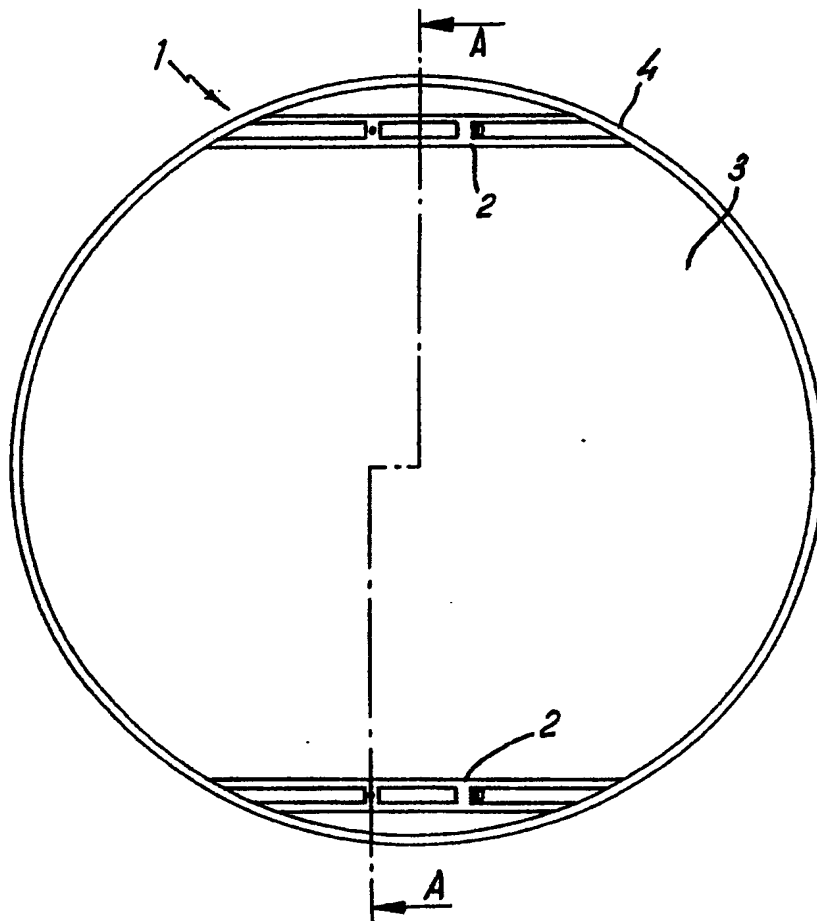
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(64) **Signs.**

(57) A sign, for example, a road traffic sign, comprises a message displaying body 1 moulded from synthetic plastics material such as sheet moulding compound (SMC). Strengthening formations 2 and 4 are integrally moulded on the reverse face of the body 1 and around the periphery. The formations 2 on the reverse face provide an anchorage for fixing clips by which the body is fixed to a support. Metallic inserts may be inserted or moulded into the formations to facilitate accommodation of the fixing clips. This provides a corrosion resistant versatile arrangement.

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**FIG. 1**

## SIGNS

The present invention relates to signs particularly, but not exclusively, road signs.

Currently road signs comprise a message displaying body generally stamped from sheet metal and mounted on a supporting frame erected by the roadside. Smaller signs may be in one piece, but larger signs are usually made up from a number of complementary pieces. These signs are expensive to manufacture, prone to damage and liable to corrosion.

According to one aspect of the present invention, there is provided a sign comprising a message displaying body moulded from sheet moulding compound, a support for the body and means for fixing the body to the support.

According to another aspect of the present invention, there is provided a sign comprising a message displaying body moulded from synthetic plastics material, the body having an integral rim extending around the periphery of the sign area and standing proud of the plane of that area.

According to a further aspect of the present invention, there is provided a sign comprising a message displaying body moulded from synthetic plastics material, the body having an integral stabilising formation on the reverse side to the message displaying side.

According to a still further aspect of the present invention, there is provided a sign comprising a message displaying body moulded from synthetic plastics material, the body having an integral formation on the reverse side operative to hold a clip enabling the body to be fixed to a support.

In a preferred embodiment of the invention, formations on the reverse side of the body of the sign may define a slot to receive one end of a clip and an aperture to receive the other end of the clip, the clip being used to clamp a post or other supporting member to the sign body. The slot defining formations may be strengthened by ribs extending at right angles to the formations and also to the plane of the sign body. The formations and/or ribs may be integrally moulded with the sign body itself. Alternatively metal inserts may be moulded into the sign body during the moulding operation. The shape of the inserts is chosen as desired.

The rim may extend both to the front and the rear of the front and rear plane faces of the sign body. At the front that extension of the rim delineates the message bearing area of the sign and at the rear the extension helps to stabilise and strengthen the sign.

In order that the invention may be more clearly understood, one embodiment thereof will now be described, by way of example with reference to the accompanying drawings, in which :-

Figure 1 is a rear elevational view of one form of sign,

Figure 2 is a cross-section of the sign shown in Figure 1 taken along the line A-A,

Figure 3 is a side elevational view of the sign of Figure 1,

Figure 4 shows an enlarged view of a part of the arrangement of Figures 1 to 3,

Figure 5 shows an enlarged view of another part of the arrangement of Figures 1 to 3,

Figures 6a and 6b show formations on the rear of the sign for an alternative method of fixing the sign to a support,

Figure 7 shows a modification of the formation shown in Figure 6a,

Figure 8a shows an alternative formation to that shown in Figure 6a,

Figure 8b shows a detail view of the formation of Figure 8a,

Figure 9a shows a further alternative formation to that shown in Figure 6a,

Figure 9b shows a detail view of the formation of Figure 9a, and

Figure 10 shows a cross-section through a further alternative formation to that of Figure 9a.

Referring to Figures 1 to 3, the message bearing body 1 of the sign is moulded from sheet moulding compound (SMC). This comprises a base polymer reinforced with glassfibre. The base polymer may be an unsaturated polyester. One of the principal benefits derived from the use of SMC is its ability to be moulded using a high powered press, to intricate shapes with the option of including inserts within the moulding operation. Estimated thickness of the sign face is approximately 2mm. The material is inherently very stable environmentally and is relatively rigid. The use of SMC also facilitates the provision of a high degree of surface quality straight from the mould for the sign face. Moulded ribs 2 on the reverse 3 shown in Figure 1, stabilise the sign at minimum weight. A circumferential rim 4 moulded normal to the plane of the sign not only provides additional stabilisation but also delineates the sign face area on the sign surface. The signs will be self-coloured to the regulation grey colour.

Figure 4 shows an enlarged view of one of the ribs 4 of the embodiment of Figures 1 to 3. This comprises two substantially parallel planar bracing members 5 and 6 extending substantially normal to the plane of the sign surface. These are joined by two cross members 7 and 8 preferably of greater thickness than the members 5 and 6. One member supports a threaded metal projection 9 and the other a metal tag 10 defining an aperture 11. Projections 9 and tag 10 are moulded in. All other parts are integrally moulded during the moulding operation. Members 5 and 6 are formed with faceted substantially semi-circular recesses at

12 and 13 intermediate the members 7 and 8. In order to support the message bearing body 1 of the sign on a supporting post, for example, the post is partly accommodated in the faceted recesses 12 and 13 and clamped in position by a clamp (not shown) one end of which is inserted into the aperture 11 and the other end of which is connected by means of a nut (not shown), for example, to the threaded projection 9. The facets on the recesses 12 and 13 resist rotation of the body 1 on the supporting post.

Figure 5 shows an enlarged view in cross-section of a peripheral area of the message bearing body 1. The rim 4 comprises a portion 4a which extends rearwardly of the plane of the body 1 and portion 4b which extends forwardly of that plane. Portion 4b also delineates the message bearing area 4c of the body 1 which is shown shaded in this figure.

Figures 6a and 6b show alternative formations on the rear face of the sign body for enabling the body 1 to be mounted on a support such as a post. The formation shown on Figure 6a comprises parallel elongate spaced projections 20 and 21 which together define an elongate slot 22 of inverted T-shaped cross-section. These projections 20 and 21 are integrally moulded with the remainder of the sign body 1. Their shape may be varied to accept different forms of clip or clamp. The formation shown on Figure 6b comprises a fabricated metal bracket 22. It comprises three planar portions 23, 24 and 25. Portion 25 is moulded into the material of the sign body 1, portion 24 extends at right angles to the main plane of the sign body 1 and portion 23 extends substantially parallel to that plane and defines an aperture 26 which in operation receives the other end of the clip or clamp already mentioned.

Figure 7 shows a modification of the formation shown in Figure 6a. In this modification pairs of strengthening ribs 27 and 28 extend at right angles to respective projections 20 and 21 and to the main plane of the sign body 1. These ribs are integrally moulded with the remainder of the sign body 1 and are positioned to transfer clamping loads to the plane of the sign body 1. Their number and position may be varied from that shown in this figure.

In the arrangements of Figures 6a and 7, reliance is placed solely on the innate strength of the sheet moulding compound itself. Figures 8a, 8b, 9a and 9b show alternative arrangements employing metal inserts moulded into the sign body 1 during the moulding operation. In Figure 8a respective elongate metal inserts 29 and 30 of right angled shape in cross-section are moulded into formations 20 and 21. Part of one of these inserts is shown to a larger scale in Figure 8b. As can be seen, grooves 31 are formed in one face to assist keying of the moulding material in the insert.

In the arrangement of Figure 9a, the projections 20 and 21 are wholly provided by the arms of an elon-

gate metal insert 32 of substantially U-shaped cross-section. During moulding of the sign body 1 the base 33 and lower portions of the arms are moulded in Figure 9b show a part of this insert 32 outside the body 1.

In the embodiments of Figures 8a, 8b, 9a and 9b strengthening ribs may be provided as before.

In the arrangement of Figure 10, two parallel channel formations 40 (only one shown) are moulded on the rear face of the sign body. In each formation is placed a generally U-shaped cross section anodised aluminium insert 41 which is fixed in the respective formation by means of an adhesive. The adhesive may be epoxy, acrylic polyurethane or any other suitable material. The legs of the 'U' are turned over towards one another so as to provide a restraint for a complementary T-shaped cross section ends of a fixing for a pole or other support. The fixing may be positioned at any desired position along the respective formation. Each formation extends almost from side to side of the sign body and strengthening ribs 42 are disposed at intervals along its length.

It will be appreciated that the above embodiment has been described by way of example only and that many variations are possible without departing from the scope of the invention.

### Claims

1. A sign comprising a message displaying body moulded from sheet moulding compound, a support for the body and means for fixing the body to the support.
2. A sign as claimed in claim 1, in which the body has an integral rim extending around the periphery of the sign area and standing proud of the plane of that area.
3. A sign as claimed in claim 2, in which the integral rim extend both to the front and to the rear of the front and rear plane faces of the sign body, the rear extension helping to stabilise and strengthen the sign.
4. A sign as claimed in claim 1, 2 or 3, in which the body has an integral stabilising formation on the reverse side to the message displaying side.
5. A sign as claimed in any of claims 1 to 4, in which the body has an integral formation on the reverse side and the means for fixing the body to the support comprises a clip disposed in the integral formation.
6. A sign as claimed in claim 5, in which the formation defines a slot to receive one end of the clip

and an aperture to receive the other end of the clip, the clip being used to clamp a post or other supporting member to the sign body.

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7. A sign as claimed in claim 6, in which the slot defining formation is strengthened by ribs extending transversely to the formations.

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8. A sign as claimed in claim 7, in which the ribs are integrally moulded with the sign body itself.

9. A sign as claimed in any of claims 5 to 8 in which a metal insert is moulded into the formation, the insert being shaped to receive the means for fixing.

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10. A sign as claimed in any of claims 5 to 8 in which a metal insert is secured by adhesive in the formation, the insert being shaped to receive the means for fixing.

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11. A sign comprising a message displaying body moulded from synthetic plastics material, the body having an integral rim extending around the periphery of the sign area and standing proud of the plane of that area.

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12. A sign comprising a message displaying body moulded from synthetic plastics material, the body having an integral stabilising formation on the reverse side to the message displaying side.

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13. A sign comprising a message displaying body moulded from synthetic plastics material, the body having an integral formation on the reverse side operative to hold a clip enabling the body to be fixed to a support.

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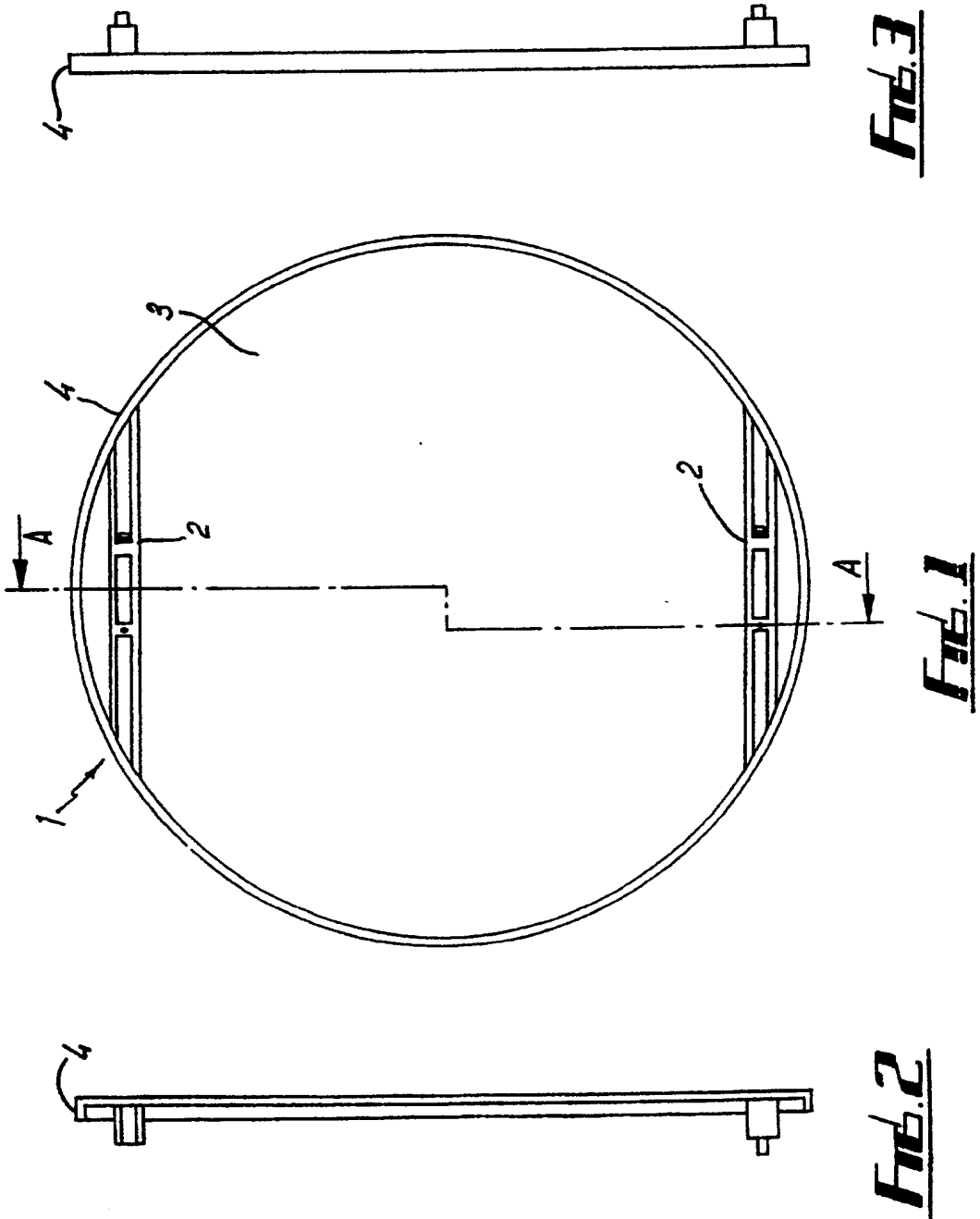
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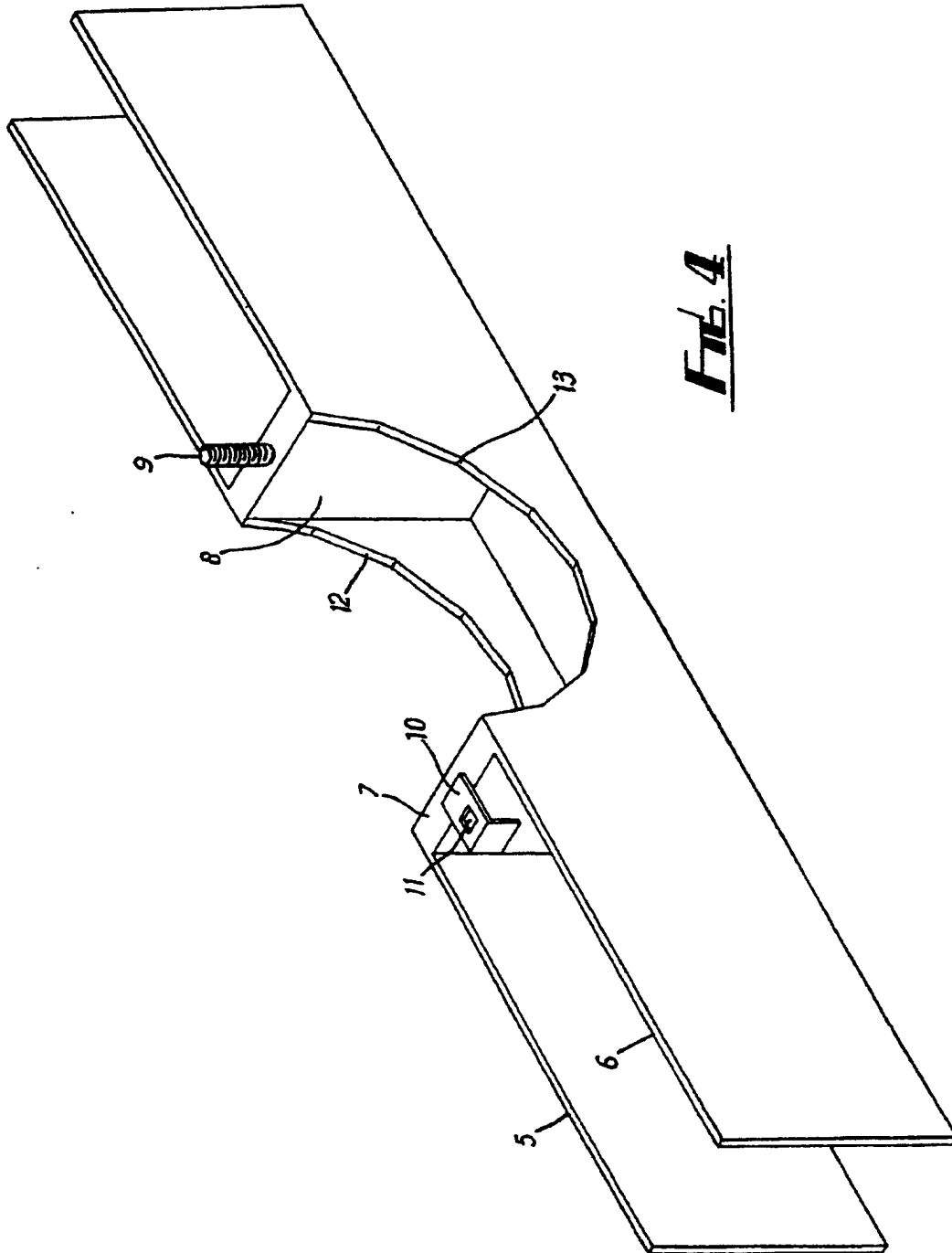
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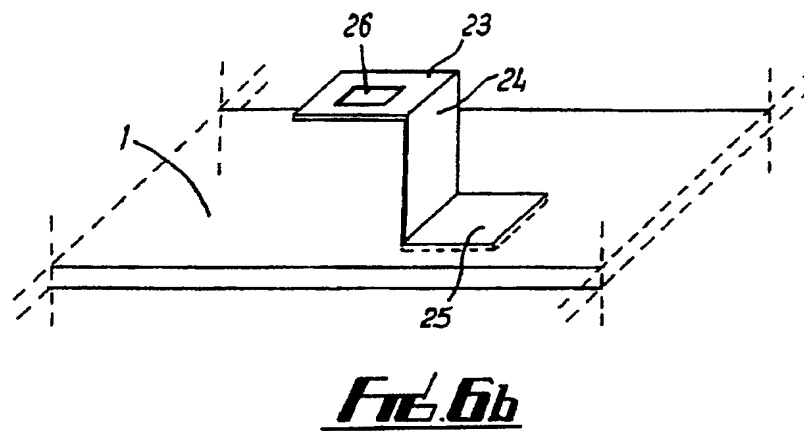
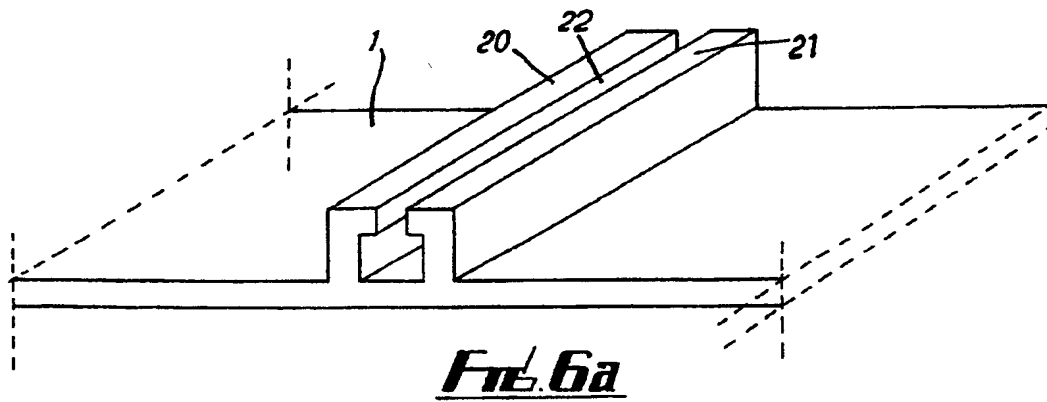
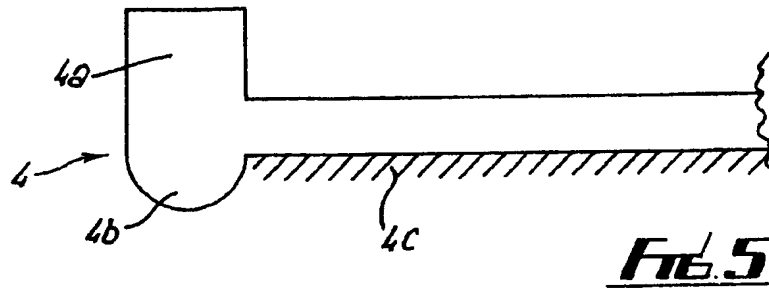
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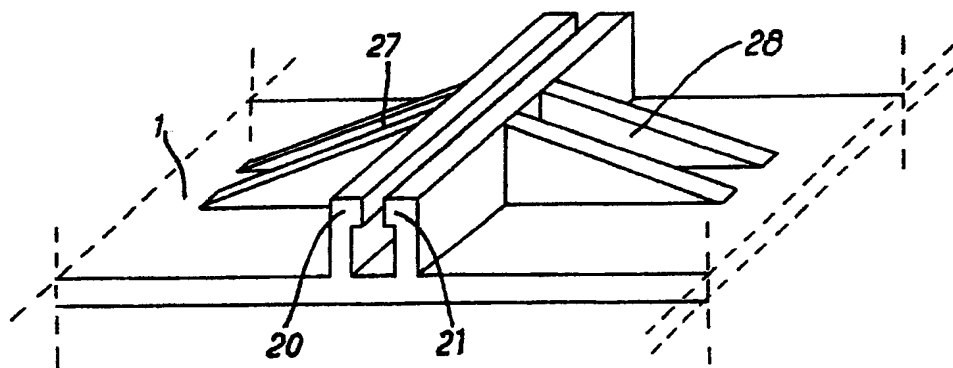
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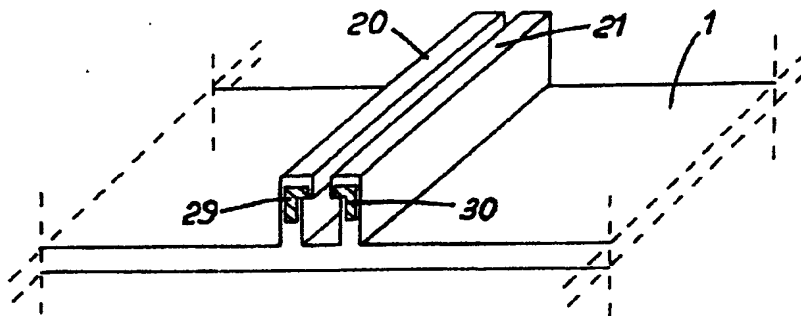




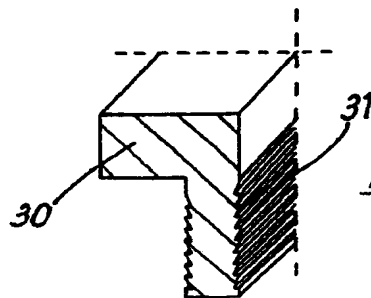




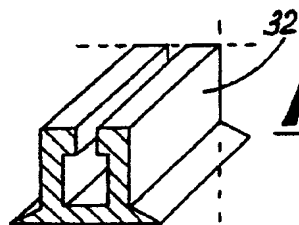
**FIG. 1**



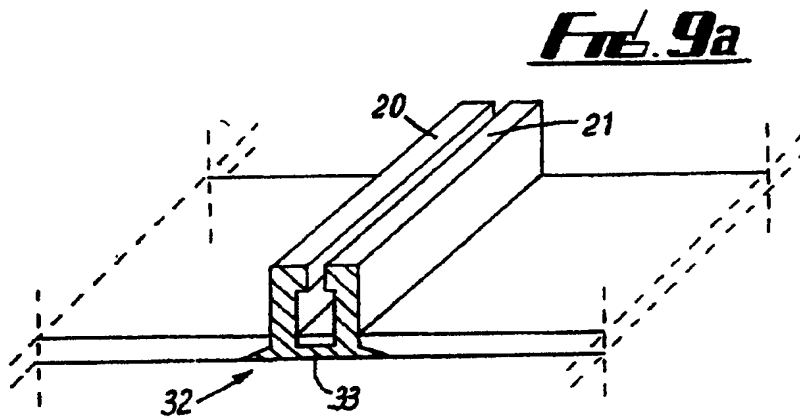
**Fig. 8a**



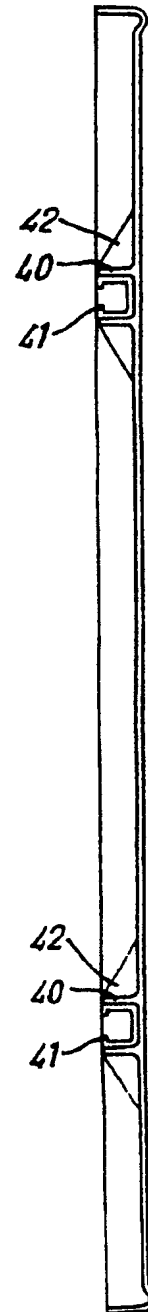
**Fig. 8b**



**Fig. 9b**



**Fig. 9a**



**Fig. 10**



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# EUROPEAN SEARCH REPORT

Application Number

EP 91 30 0427

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	FR-A-1 141 033 (GUISLAIN) * Page 2, left-hand column, last paragraph; figures 1,2 *	1,2,4,9 11,12	G 09 F 7/00
A	---	5,7,8, 13	
X	FR-A-1 127 910 (LEVIE-FFOULKE) * Whole document *	1,2,4,5 11,12 13	
A	---		
X	BE-A- 629 355 (HYE) * Whole document *	1,2,4, 11,12 5	
A	---		
X	FR-A-2 600 349 (GUYADER) * Whole document *	1,5,10, 12,13 6	
A	---		
A	US-A-4 812 343 (KIEKHAEFER) * Abstract; column 5, lines 55-64; figures 2,10-12 *	1,2,3,4	
	---		
A	GB-A-1 547 359 (HEARD) * Page 1, lines 68-90; fig. *	5,6	G 09 F 7/00
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The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>29-04-1991</b>	Examiner <b>KAVCIC</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			